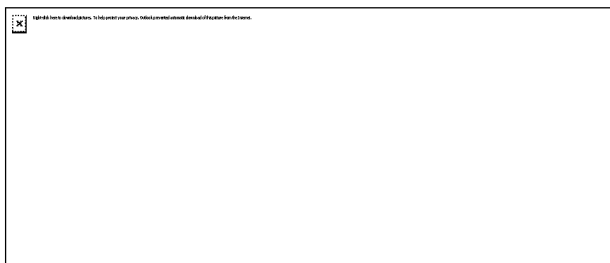


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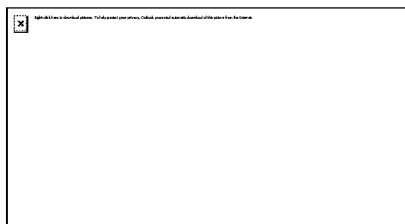
Below is a selection of application notes from Biotage. To request full PDFs for any or all of these click on the links below:



Extraction of Peptides From Human Plasma and Serum Using EVOLUTE® ABN 96-Well Plates Prior to LC-MS/MS

This application note describes the extraction of several peptides, ranging in size from a 7mer to a 54mer, from plasma and serum using EVOLUTE® ABN in a 96-well plate format. The presence of certain proteins and peptides in human biological matrices can be used as diagnostic markers for the onset of disease and other health problems in humans. The ability to detect and monitor lower levels of peptides can aid in clinical patient health assessments and therapeutic drug level determinations. The sample preparation methodology detailed in this application note can significantly increase sensitivity and detection of peptides from biological matrices on LC/MS/MS. This application note offers the user two different elution strategies due to the extensive combination of peptides that may need to be extracted either strategy may be suitable dependent upon which peptides are relevant.

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Extraction of Pain Management Drugs from Urine using EVOLUTE® CX With the RapidTrace+ Automated SPE Workstation Prior to LC-MS-MS

This application note describes the extraction of 21 different drugs in urine which are typically screened for pain management panels using EVOLUTE CX 100 mg/3 mL cartridges and automated using the RapidTrace workstation. The use of schedule I drugs for patient pain management therapy warrants constant monitoring of therapeutic levels in the patient. Screening patient urine samples for the free drugs is complicated by the metabolism process which converts the free drug to the β -glucuronide form. Patient urine samples can be enzymatically hydrolyzed to cleave glucuronide moiety and produce the free form of drug. The target analytes can then be extracted from the urine matrix using EVOLUTE CX solid phase extraction cartridge.

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Extraction of Malachite Green, Crystal Violet and their Leuco Metabolites From Salmon Using QuEChERS and EVOLUTE CX for LC-MS-MS Analysis

This application note describes the extraction of malachite green, leuco malachite green, crystal violet (gentian violet), leuco crystal violet (leuco gentian violet) and brilliant green from oily fish tissue using enhanced dispersive SPE followed by EVOLUTE CX clean up. Malachite green (MG) and crystal (gentian) violet (CV) are triphenylmethane dyes used in aquaculture as fungicides and ectoparasiticides. They are rapidly metabolised to the leucomalachite green (LMG) and leucocrystal (gentian) violet (LCV) metabolites that persist in fish tissue. MG and CV are banned in many countries due to their mutagenicity and carcinogenicity, but may still be used illegally.

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Extraction of a Range of Immunosuppressants From Whole Blood Using ISOLUTE SLE+ for LCMS/MS Analysis

This application note describes the extraction of sirolimus, tacrolimus, everolimus, cyclosporin A from whole blood samples using supported liquid extraction prior to LC-MS/MS analysis. Immunosuppressants inhibit or prevent the activity of the immune system used to prevent rejection of transplanted organs and treat autoimmune diseases. Due to the risks of immunodeficiency, those under treatment must undergo constant therapeutic drug monitoring (TDM) requiring reliable and robust analytical techniques for quantification of these drugs. Current methodologies use immunoassay techniques to measure immunosuppressant levels in patients which are expensive, time consuming and susceptible to issues with cross reactivity. The sample prep method in this application note offers an alternative approach

Simultaneous Extraction of Ethyl Glucuronide and Ethyl Sulfate from Urine with EVOLUTE AX Prior to LC-MS-MS analysis

This application note describes the simultaneous extraction of the alcohol metabolites ethyl glucuronide (EtG) and ethyl sulfate (ES) from human urine using EVOLUTE AX columns in a range of column sizes followed by LC-MS-MS analysis. Ethyl glucuronide (EtG) and ethyl sulphate (ES) are specific metabolites formed within the body after the ingestion of alcohol. In forensic toxicology, when tested together they provide more specific evidence of alcohol intake. This application note demonstrates the simultaneous extraction of both EtG and ES in the same assay and represents further optimization of AN718 which showed single EtG extraction without ES. Recoveries for EtG range from 90-105% and 80-103% for ES across two formats of EVOLUTE AX columns with RSDs <10%. The LOQ is 10 ng/mL for

to immunosuppressant analysis with LC-MS/MS giving more reliable and robust recoveries with no cross-reactivity and cost saving opportunities. Analyte recoveries range from 60-97% with RSDs all below 10%.

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Extraction of Low Level Testosterone and Androstenedione From Human Serum Samples Using ISOLUTE® SLE+

This application note describes the extraction of testosterone and androstenedione from female patient serum samples using ISOLUTE SLE+ (96 well) plates. This method has been optimized to extract testosterone and androstenedione from female clinical serum samples. The method has achieved very low limits of quantitation for testosterone and androstenedione 0.4 nmol/L and 0.9 nmol/L respectively. The recoveries for both analytes were greater than 90%.

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Extraction of Retinol, β-Carotene (Vitamin A) and α-Tocopherol (Vitamin E) from Serum using ISOLUTE® SLE+ 96-Well Plates with APCI-LC-MS-MS Analysis

This application note describes the extraction of Retinol, β-Carotene, and α-Tocopherol from human pooled serum using ISOLUTE SLE+ 96-well plates with LC-MS analysis. Vitamins A and E have been shown to have antioxidant and anti-inflammatory effects that mammal biological systems use to protect against cell mutation and tissue damage. The extraction of Vitamin A and E from human serum prior to analysis with LC-MS-MS is problematic due to matrix effects. This method outlines a fast, high throughput sample preparation technique that eliminates matrix interferences from serum allowing for mass spectral detection of the target analytes at a concentration of 100 ng/mL or less.

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EtG and 2 ng/mL for EtS across both EVOLUTE AX formats.

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Extraction of a Range of Opiates and Metabolites From Human Urine Using ISOLUTE® SLE+ Columns prior to GC-MS Analysis

This application note describes the supported liquid extraction clean-up of a wide range of opiates and metabolites from urine prior to quantitative GC-MS analysis. This application note demonstrates an effective and efficient supported liquid extraction protocol for the clean-up and concentration of a range of forensically significant opiates and their metabolites.

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Extraction of Synthetic Cannabinoids (SPICE) and Metabolites from Urine, Plasma and Whole Blood using ISOLUTE® SLE+ Prior to LC-MS/MS Analysis

This application note describes the extraction and quantitation of Cannabinimimetic Naphthoylindoles (Synthetic Cannabinoids) and their metabolites (JWH Series) from various matrices using Supported Liquid Extraction (SLE). Synthetic Cannabinoids or SPICE as they are commonly known have become an increasing problem as one of the newest forms of illicit drugs being consumed today. These compounds bind to the cannabinoid receptors in mammals triggering similar euphoric symptoms as Tetrahydrocannabinoids (THC). Currently robust and fast analytical methods of analysis are required to aid in the screening and detection of this growing class of compounds. The recoveries obtained for the synthetic cannabinoids parent and metabolites ranged from 70-98 %.

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